

Pterotylenchus cecidogenus, a nematode causing stem galls on
Desmodium ovalifolium.

P. S. Lehman¹

INTRODUCTION: There are about 450 species of *Desmodium*, most of which are distributed in the warmer regions of the Western Hemisphere, Australia, and Africa (3). Most Floridians, whether they wish to or not, sooner or later become acquainted with Florida beggarweed, *Desmodium tortuosum* (Sw.) DC., and other related species which produce hundreds of small, flat, pubescent seeds that cling tenaciously to clothing or other objects. In the midst of an inadvertent negative encounter with Florida beggarweed, it may be helpful to remember that these plants are legumes that are important positive contributors to our ecosystem through their ability to symbiotically associate with a bacterium that fixes nitrogen in root-nodules. For this reason, several species of *Desmodium* are recognized as perennials which have great potential as tropical and subtropical pasture legumes that can be used in association with various grasses. *Desmodium barbatum* (L.) Bent., *D. heterocarpon* (L.) DC., and *D. ovalifolium* Wall. are species that are being used in pasture improvement breeding programs in Florida and other subtropical regions. In recent years, however, a stem gall nematode, *Pterotylenchus cecidogenus* Siddiqi and Lenne, was found parasitizing and destroying stands of *D. ovalifolium* in Colombia (2,4,6). This circular provides information that will aid growers, plant breeders, and regulatory personnel in recognizing signs of the presence of this nematode.

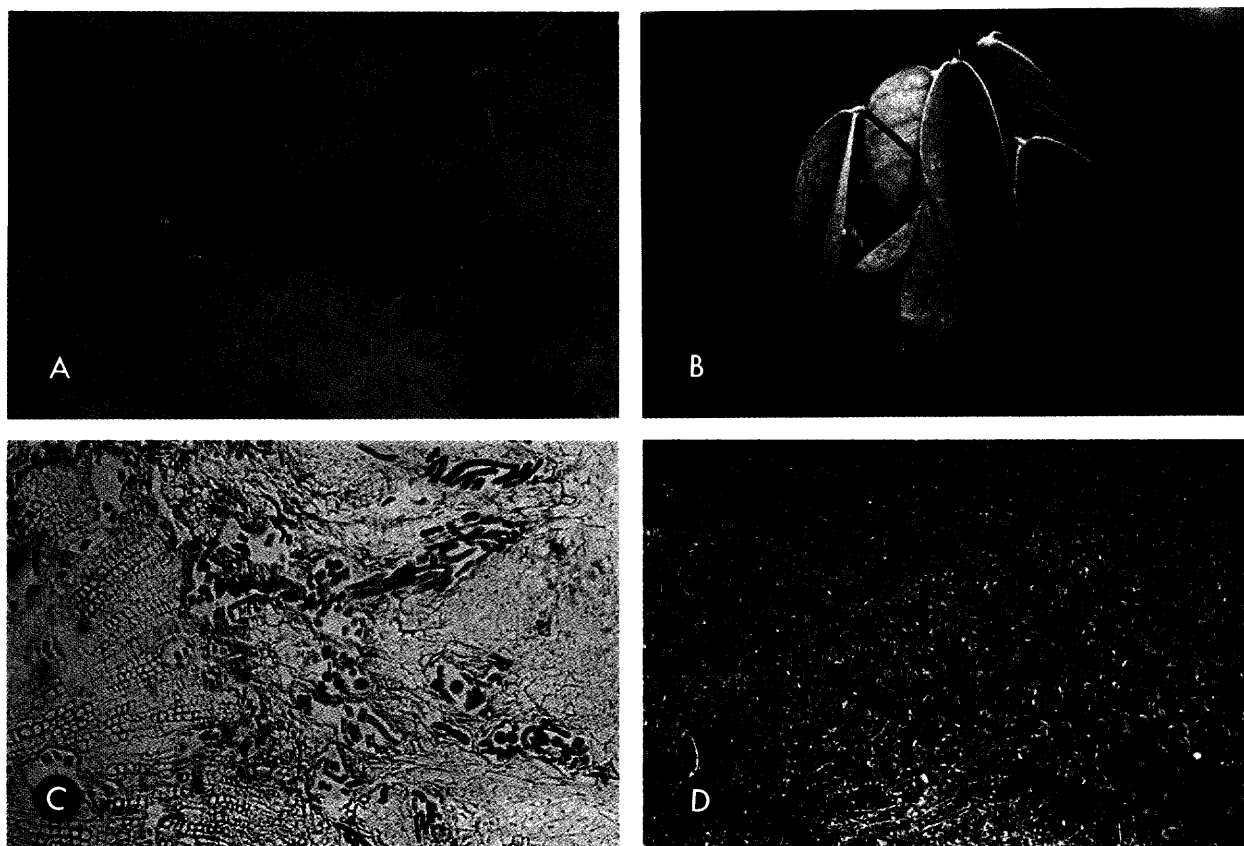


Fig. 1. *Pterotylenchus cecidogenus* on *Desmodium ovalifolium*: A. Stem symptoms (galls); B. Leaf symptoms (chlorosis); C. Nematodes in a cross section of an infected stem; D. Field damage. (Photos courtesy of J. Lenne).

¹Nematologist, Bureau of Nematology, P.O. Box 147100, Gainesville, FL 32614-7100

GENERAL TAXONOMY: *Pterotylenchus cecidogenus* is the only species in the genus. It belongs to the family Anguinidae and is closely related to *Ditylenchus* species, especially those formerly in *Orrina* and *Nothotylenchus* which lack a muscular median esophageal bulb and have females with bodies that are not obese. *P. cecidogenus* differs from *Ditylenchus* mostly in its columned uterus and the presence of vulval flaps (4).

HOSTS AND DISTRIBUTION: This nematode has been found on *D. ovalifolium* throughout the eastern plains of Colombia and near Porto Velho in the western part of central Brazil (6). It has also been reported on *D. barbatum* a native host that is widely distributed in tropical regions of South and Central America (6). Field tests indicate that *D. heterocarpon*, *D. strigillosum*, and *D. velutinum* are also hosts of this nematode (Personal communication, J. Lenne). This nematode may have potential to damage other species of *Desmodium* under field conditions, since 13 of 33 species that were inoculated and tested under greenhouse conditions were indicated to be hosts of *P. cecidogenus* (Personal communication, J. M. Stanton).

SYMPTOMS AND DAMAGE: *P. cecidogenus* causes galls ranging from 0.5 to 2.0 cm in diameter on the stems of *D. ovalifolium* and *D. barbatum*. These galls most frequently are located at the stem nodes (Fig. 1). Other symptoms of *P. cecidogenus* infection are chlorosis and folding of the leaves inward along the midvein and downwards at the petiole (5). Stem and root growth were suppressed 40 days after inoculation of *D. ovalifolium* with the stem gall nematode (5). The damage that the nematode causes is most severe to young seedlings and, in some cases, the nematode may cause the death of young seedlings (5). Penetration of *Desmodium* is not restricted to young seedlings, however, since it has been observed in 12-week-old plants (5). Nematodes more rapidly colonize wounded stems of *D. ovalifolium* resulting from grazing or animal trampling (2). Artificial wounding is not essential, however, since the nematode can penetrate undamaged stems (5).

CONTROL: Seed treatment with nematicides reduced infection of *D. ovalifolium* by *P. cecidogenus* for two to three weeks under greenhouse conditions, but it is not known if these chemicals improve survival under field conditions (6). In Colombia, burning of pastures reduced the numbers of galls on *D. ovalifolium* for 3 months compared to those on unburned plots (5). Damage is more severe in pastures that are intensively grazed. Galls are frequently associated with abrasions, cuts, and breakages of stems caused by animal trampling, and field observations indicate that shorter varieties of *D. ovalifolium* show less damage from animal trampling and have fewer stem galls than taller varieties.

SURVEY AND DETECTION SUMMARY: Presently, *P. cecidogenus* is not known to occur in Florida. *Desmodium ovalifolium*, which is used as a pasture legume in Florida, is a known host of this nematode. There are 27 native species of *Desmodium* found in Florida (1,2,3). Because it is not known if these native species are hosts of the stem gall nematode, they should also be surveyed. Examine the stems for galls, especially at the nodes. Samples should be placed in plastic bags and submitted to the Bureau of Nematology for examination. It is very important that samples are not exposed to excessive heat during collection and shipping, since temperatures of 120 F for 10 minutes are lethal to many nematodes, and it is important that these nematodes arrive at the laboratory in an active, live condition in order to efficiently extract them from stem galls.

LITERATURE CITED:

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